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ABSTRACT

Leading educational researchers focused on education in the 21st century in a discussion of their ongoing work. Discussion was initially limited to the issue of cognitive strategies, skills, or styles that might be relevant to the year 2050. Subsequent discussion turned to consideration of aspects of ongoing research that hold the greatest promise for effective schooling in the future. Discussants were asked to identify research questions they would pursue if their objectives were to develop the best ways to teach cognitive skills. The transcript of participants' comments is organized under the following headings: (1) problems, solutions, and progress; (2) skills for the future; (3) school and real life contexts; (4) resistance and receptivity to educational change; (5) redefining achievement; (6) access to information; (7) goal-based education; (8) testing, textbooks, and teacher development; (9) transition from the present to the future, in terms of transfer of learning skills, teaching thinking strategies, developing schemas, undoing educational bureaucracies; (10) business, education, competition; (11) global education; (12) families, school, and community; and (13) future research. Supplementary materials describe the ThinkAhead Project of San Francisco's Whitman Institute, a project designed to serve as a catalyst for developing educational models that will prepare people to think creatively in the world of the future. (RH)

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THE THINKAHEAD PROJECT

FORUM #1

LEARNING IN THE FUTURE

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Convened by:

THE WHITMAN INSTITUTE
405 Davis Court
San Francisco, California

Tuesday, March 28, 1989

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THE THINKAHEAD PROJECT

FORUM #1

LEARNING IN THE FUTURE

Convened by:

THE WHITMAN INSTITUTE
405 Davis Court
San Francisco, California

Tuesday, March 28, 1989

A note to the reader...

THE WHITMAN INSTITUTE is a nonprofit educational corporation located in San Francisco. The Institute received tax-exempt status in September, 1985. Its mission, as stated in its bylaws, is to

> *"devise practical strategies and interventions that will enable individuals to improve their thinking skills in relation to everyday problem solving, to lead action-oriented and value-directed lives, and to achieve the kind of self-reliance that is appropriate and necessary in a technologically sophisticated society."*

The scope of our research interests is quite broad, our perspective is generalist, and our aims are practical. Essentially, we are concerned with the way humans behave (and don't). As indicated in our Mission Statement, however, our bedrock interest is in the thinking process which, for us, underlies and directs all human behavior.

The Institute's publications, designated *Fieri Reports, Fieri Abstracts and Reviews, and Fieri Forum Transcripts* are described below. *Fieri*, meaning *to become* in Latin, has been adopted as a fitting motto for our publications and is the root of our somewhat playful acronym: Foundation for Individual Excellence and Retraining of the Intellect.

FIERI REPORTS	Occasional reports generated from our research projects on various topics related to human behavior
FIERI ABSTRACTS AND REVIEWS	A compilation of abstracts, critiques, and general reviews of books, articles, and programs dealing with various topics related to human behavior (interviews with social and behavioral science researchers are included in this series)
FIERI FORUM TRANSCRIPTS	Edited transcripts of forums conducted by the Institute with professionals and laypersons working in various fields related to human behavior

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INTRODUCTION

In January 1989 The Whitman Institute launched ThinkAhead, a research project designed to serve as a catalyst for developing educational models that will prepare people to think more critically and creatively in the world of the future. The first year of ThinkAhead is devoted to convening a series of forums featuring participants whose vantage points we regard as vital to thinking about thinking in American society, whether within or outside of the school system.

Our first forum, ***Learning in the Future***, brought together leading educational researchers from across the country to speculate in informed ways about education for the 21st century. The roundtable discussion was moderated by Martin Covington; the staff and board of directors of The Whitman Institute sat in as observers. The transcript of this session is an edited version of the proceedings.

The three other forums that are planned for this year are:

Designing the Future: Forward-looking thinkers representing different professions and academic disciplines will set forth their views of what the next century is likely to demand and how those demands might affect education, in the broadest sense of the word.

Working in the Future: Business people, especially those concerned about the ways in which the educational system prepares young people for the world of work, are invited to share their experience and recommendations with us.

Restructuring Future Education: Teachers, administrators, and others eager to begin or already involved in rethinking and reshaping educational policy will examine the broad spectrum of changes that must occur in our systems and practices of delivering education.

As with ***Learning in the Future***, edited transcripts of these forums will be produced and distributed to all participants as well as to various other individuals, agencies, libraries, and organizations we want to inform and/or excite to action. At the completion of the four forums in December 1989, The Whitman Institute tentatively plans to hold a final review session made up of selected participants and observers from the four forums. This final session will permit us to integrate the work of the forums, to evaluate our findings and our process, and to discuss future directions.

PROCEEDINGS

MODERATOR COVINGTON: *I'm Marty Covington and on behalf of The Whitman Institute, the staff, the board of directors and the founder, I'd like to welcome everyone. We have gathered here an exciting group of individuals who are forerunners in their educational field.*

The first part of our discussion can be limited to the question of the cognitive strategies, skills, or styles, however you want to think about them, narrowly or broadly, that might be relevant to the year 2050. At some point along the way, we would like to have your thoughts about what aspects of your research you feel holds the greatest promise for effective schooling in the year 2050. Related to that, and assuming you had complete freedom to choose, we'll ask what research questions you would pursue if your objectives were to develop the best ways to teach cognitive skills in the year 2050.

I recognize that there are a lot of preamble questions we might want to raise, like: What should the goals of education be? But I'm sure, given the limited time we have, that we can interweave those concerns as we go.

To begin, let's mention one of the most important oracles of the future that is very rarely paid attention to--all the more surprising because it turns out that this oracle is almost entirely correct in predicting the future. The oracle turns out to be a collection of folk wisdom called Murphy's Laws. Who among us as future planners in the area of cognition can deny the validity of the statement, "If anything can go wrong it will?" Or in decision making, "Whichever line I stand in, the other will always move faster"? Naturally, Murphy and his intrepid band of followers are not telling us exactly what's going to happen or when it's going to happen, but only that something will happen. I'm wondering if there is something in Murphy's Laws that give them not only wit but also some truth with respect to the frailty of the human mind and the human problem-solving process. In effect, can we answer the question: Should education be in the business of putting Murphy's Laws out of business?

PROBLEMS, SOLUTIONS, AND PROGRESS

MODERATOR COVINGTON: *At each of your places you will find an envelope. Claire, would you care to open your envelope first and read it to us and comment in relation to the spirit of our query today?*

CLAIRE WEINSTEIN: *"If you think the problem is bad now, just wait until we've solved it".* I guess there are a couple things that strike me just off the top of my head. One is that, as a researcher, something that both fascinates and frustrates me at the same time is whenever I come up with what I think is a wonderful, marvelous, creative way of addressing an issue, I find that when I'm done it's raised more questions than I had initially, and it just feels as if I'm going to reach the end of my career knowing less than at any other point in my life.

The other thing that seems implicit in that statement--which *does* bother me--is the sense of lack of progress. I think that a number of people perceive that we're not making progress, and I think that's often fiction--that we really are, but it's an evolutionary process: We keep coming back to things and, hopefully, it's like a spiral that evolves. Each time we do, our understanding broadens to an extent, but often that points out other nuances that we need to address.

MODERATOR COVINGTON: *Would you say, then, that a crucial factor for people in general might be a recognition of progress when it occurs?*

CLAIRE WEINSTEIN: Well, an understanding of what progress is. I don't think we've done a very good job of explaining to people, particularly in intellectual or problem-solving or decision-making areas, what progress is. People think of a solution as progress. And anything less than a total solution is, ipso facto, not progress. That seems to be one of the implicit things behind a statement like this. To have increased understanding of a problem, increased depth and additional options of ways we might proceed against it--that's not seen as progress.

JIM CONNELL: I've had two interactions the last two days that resonate very closely with that. One was a student of mine who called me in San Francisco from Rochester, NY; it was 11 P.M. here, which means it was very late in Rochester when she called me. She was panicking about her dissertation. We had let one of the other committee members read it last week for the first time, and this other person is a very astute colleague of mine who had some important suggestions to make about reorganization that would improve the quality of the dissertation. The student equated improving the quality with getting closer to being done, when, in fact, improving the quality meant it's going to take *longer* to get done. The problem as she sees it, of course, is getting it done, not improving the quality at this point. It's a stage every graduate student goes through--that is, they lose the sense that the point is to do a good piece of work. So, I think a lot depends on how you define the problem, and that's the second point: Part of the reason why that statement is true in some ways is because we have defined the problem wrong to begin with. When you've solved the problem *as you defined it*, you often realize that it was the wrong problem you were trying to solve.

The second interaction was at a colloquium yesterday where another one of my colleagues was talking about how students go about programming computers--which is that they take each step of the program and make sure they get that one step exactly right before they move on to the next one. But the problem is not doing step one, step two. The approach experts use is to get an overall program, an overall strategy, and then debug the overall strategy as they go along.

So, I guess the two points I'm trying to make are: (1) You can improve the solution of the problem but if the definition of the problem is to get it done, you might be farther away from that goal by improving the solution. The second point is that when we define a problem in the wrong way, its solution just points that out. That's why that statement Claire read rings true.

CLAIRE WEINSTEIN: But that's one of the difficulties: problem *definition* is often not what people think of as problem *solving*. When they see that new definition of the problem, I would consider that progress but, for many people, that's considered stepping backwards. "I blew it." Or "Gosh, I've got to go back and start over." We talk about problem solv-i-n-g but sometimes that gets lost and we think of it as problem solv-e-d.

MODERATOR COVINGTON: *What I'm struck with here is the fact that these people may well see progress--when it is not as much as they would like--as an error or a mistake reflecting back on them rather than on the nature of the problem.*

SCOTT PARIS: There's another interpretation that goes along with this and that's from the educator's perspective. If you take a classic problem like literacy or thinking skills or delinquency, and the statement is that after the solution it's worse than it was before, the educators' point of view, I think, is oftentimes that people can't agree on what the problem is or that they each have a different interpretation--so all of their solutions address different aspects of the problem. Educators typically get multiple sources of advice and multiple solutions that don't necessarily have anything to do with each other.

So, the cynicism of the saying that it's worse after all the attempts at solution might reflect the fact that you're inundated with conflicting or incongruent solutions. I think that oftentimes happens in school, and teachers and administrators throw up their hands and say "How can you suggest these twenty different things? They don't even fit together and you've missed what I thought was my problem in the first place!"

BARBARA McCOMBS: I think we're only beginning to understand the very different kind of problem it is when you're dealing with complex real-world decisions where it's perfectly okay to have multiple solutions to some of these complex problems. In fact, that's the nature of real-world problems. People get upset because they think there should be a single solution. Some folks looking at the development of complex reasoning processes, judgment processes and so forth, find it's only when you get to the top stage that you realize there are probably no solutions to some of these complex problems--that the best you can do is get group consensus, and that's the nature of the beast.

SKILLS FOR THE FUTURE

MODERATOR COVINGTON: *Are these things we should pass on to youngsters? Is this going to become more of a problem as time goes on rather than less?*

CLAIRE WEINSTEIN: I think it's going to become much more of a problem. Probably the biggest thing now about self-regulated learning is that it's getting away from the dualism of mind and body and starting to look at interactions. The most significant progress now in the field of educational psychology is in interactions among variables; yet if you look at the schools, the schools teach linear thinking; separation; simple, efficient causality. They don't look at multiple causality.

JIM CONNELL: One notion in the area of skills that I would like to raise is that of negotiation. I mean that in terms of negotiation between ideas, but probably more important, interpersonal negotiation. People are going to have to be able to come to consensus about what the problem is, about what the solution or solutions are going to look like, and about timelines for solutions. There's going to be a lot of negotiation about access to information and competing points of view that were not negotiated when we were growing up. They were clear; there was no negotiation to be had. It's a question of what's the problem we're trying to define here? We've got the information; what is it that we're going to do about it?

SCOTT PARIS: Part of what students need to understand is the notion of problem *finding*, of identifying the problem as an ongoing process where there is never going to be a single, adequate, total solution. As Claire said, even if you solve a piece of a problem, there's a different piece that remains or a new piece that arises. Solutions shouldn't become part of their expectations. I think that's a very important point.

SCHOOL AND "REAL-LIFE" CONTEXTS

BARBARA McCOMBS: There are a couple of things I see as critical when we think about the future of the schools. One is what we should be teaching kids and adults in the future. We're shifting our focus from "let's fix the students"--there's something wrong with them--to "let's look at the context," the people who are working in that context, the teachers; what is it we can do to empower them to see the problem differently?

It's real obvious. Kids are coming to school and finding content and process irrelevant. They're turning off at a real early age. School is no longer perceived to be instrumental to their future--and realistically so: it is not a guaranteed ticket to a good job anymore. So, we need to do something with the *players* in the system and when we talk about what cognitive skills we need to teach the kids, I think we have to look at the adults in the environment.

DAVID BERGIN: When kids are outside of school, they do a lot of problem solving. They have to buy a stereo so they have a method for figuring out the best stereo to buy; and they have to decide whether they're going to live with their mom or dad if their parents become divorced. So, one of our questions might be, going back to what Marty posed: What are the goals of schooling? We want them to learn problem solving that will be relevant to real life, true. But, on the other hand, we don't want to make schooling just a training ground for out of school; schooling *should* be different from life. Outside of school you can avoid effort, quite successfully a lot of time. In school, you really want to give incentives.

JIM CONNELL: I think that's an interesting point. I think it's more provocative than it sounds. It may be that, in fact, we don't want school to be any different from real life. In other words, it may be better to try to blur the boundaries that currently exist between what goes on outside of school and what goes on inside of school. Maybe one of our goals should be that there wouldn't be such a boundary--that school should be no different from home, or from work--that they're all part of the texture of life.

One example that Marty and I have worked on a lot is the belief that effort is what counts in doing well at whatever enterprise we're involved in. It seems to be a very American belief that we would like all our children to subscribe to. Well, it turns out that the degree to which children believe effort is what counts in school correlates *zero* with performance--on any kind of measure, qualitative or quantitative. What correlates with performance is that belief coupled with the belief that you have the capacity to produce the effort. And that set of beliefs is true in any enterprise. If I believe effort is what counts and I can't put out effort, I'm not going to negotiate to buy a stereo. In school, that belief in effort is diminishing more and more because the skills required to do the things that people want done in school don't allow themselves to be acquired through effort. "I can try as hard as I want and I can't memorize all fifty states, whereas this guy next to me can. It's not that I haven't tried hard. I have tried hard. This must not be effort; this is ability. This guy is smart; I'm dumb." As Marty's research and others' have shown, it's when you're playing the ability game that you get into trouble because then there's nothing you can do about it. The kids showing the most serious detriments, not only in performance but in motivation, are the ones who believe that school is largely a game of specialized ability that they don't have access to.

BARBARA McCOMBS: I think there is an important dimension here. I agree with you that this is the future direction we'll be moving in--to contextualize the school tasks to make them very similar to real-world tasks, but I think school should be different. I don't want to use the word *disciplined* or *structured*, but school should be an environment where it's not so haphazard--a place where one learns to become a good negotiator, where we, as the adults in the environment carefully structure and understand and guide students in the accomplishment of the skills it takes to be successful when they do go out into the real world. I think students can as easily fail at real-world tasks like buying a stereo, not getting ripped off, paying too much money or whatever, and come back saying "Gosh, I'm just not good at that; I can't bargain"-- you know, doing an ability attribution in that context as well.

So, I don't think it's the ability game we want to protect them against so much as learning to accept their real skills and strengths and weaknesses--"that's who I am"--and not expecting to be successful in a real-world context when they may be just as deficient there as they are at memorizing. There are all kinds of ways we can help them understand how they're contributing to their own sense of self, their own perception of their ability or lack of it. In a way, I guess I see us becoming clinicians at some level.

CLAIRE WEINSTEIN: But aren't you also talking about maneuvering the environment a little bit?

BARBARA McCOMBS: Oh, yes.

CLAIRE WEINSTEIN: Because right now, conformity, the right answer, meeting the goal, doing it most efficiently--those are the kinds of things that are valued in the environments in which we do the training. Risk-taking was a word I kept thinking about over and over when you were talking about this. Risk-taking is not something that's fostered in schools, and I don't think fostering risk-taking necessarily means it has to be out in the real world. You can do it in a formal classroom.

When I worked for IBM, my training experiences with them were far more rigorous and structured than anything I ever had in the New York public schools growing up, but risk-taking was also very highly valued. So, it can happen in formal settings all the way to parents working with their kids. I don't think the setting is as important as the values of that setting, the culture of that setting, the climate established by that setting.

JIM CONNELL: I think the question of consensus is critical because we will maintain artificial boundaries between settings if those settings are seen to have goals that are independent of the other settings, or worse yet, contradictory. In my day it was my family saying, "God, why didn't we send him to Yale? He's learning all that weird stuff; he's a Communist"--this sort of thing. Now, in this day and age I hear the parents saying, "I wish the schools would loosen up. We're trying to teach them to be creative and problem solvers at home, and at school they're teaching them to add up numbers in little rows." So, you have a contradiction in goals between the settings that I think is part of the problem now as to why there can't be a reform in either of those settings: they haven't come to a consensus as to what the goals are for children, not for students and not for my son or daughter, but for children. What should children be able to do? What's important for them in their development? You can differentiate the *content* of what's going on in different settings but not the *process*. The process is the same: encouraging risk-taking, encouraging problem solving, encouraging discourse, encouraging collaboration. Those are the same in a good family or in a good school.

SCOTT PARIS: One of the most radical things we could probably suggest is that schools take an entirely different form in the future. I think that's probably where this conversation might go. And one of the dimensions of that entirely different form fifty years from now, I'm sure, is going to be the changing relationships among home, community, school and work. I think they ought to be very tightly interconnected, and I'd like to entertain some suggestions: for instance, that schools should be open twenty-four hours a day; they should be places where parents come and go all the time; where child care is provided; where geriatric care is provided; where on-the-job training is provided; where community services, home services, work services are almost indistinguishable--because they are all places where people in the community come to learn. I think we ought to entertain all those kinds of models.

I want to make two other comments, one about authenticity. People talk about contextualized or de-contextualized knowledge, but I think that what underlies it all is the fact that in school, children are often asked to do activities that are not authentic; they're not meaningful, significant, important. They do them for superficial goals like looking for the right answer or getting the job done. I think there can be authentic group projects that mirror the production of something, whether it's an essay, a play, a point of view, or a mathematical or science project. I think we've all seen the wonderful things that happen when kids get together for weeks and weeks and produce things, ideas as well as projects, so the authenticity of the content in the curriculum is terrifically important.

My second comment is on motivation. We're all interested in cognitive strategies and metacognition and the critical thinking that underlies solutions, whether in formal or less

formal environments. I think that for students to understand that they can exercise problem-solving strategies in school or outside of school requires them to understand the nature of the task and their own abilities. It's the combination, again, of motivation and intent to exercise the skills they've learned. I don't think transfer is automatic at all. I think that it's a product of training. So the tighter we can connect problem solving at home with problem solving in the work place with problem solving in the school, the more we can foster the transfers we talked about.

CLAIRE WEINSTEIN: The lack of transfer of cognitive skills is one of the most significant findings in the literature. We see it over and over again. It's just incredible.

EDUCATIONAL CHANGE: RESISTANCE AND RECEPTIVITY

BOB OLTON: I'm struck by an interesting discrepancy between the exciting kinds of things that are being worked on by all these people around the table and many ideas which I enthusiastically subscribe to, and yet the original question that stimulated this was: Is education perceived to be a failure? I would like to make a couple of comments.

In order for somebody to succeed in our society, their ideas have to be "sold" in terms of getting public acceptance. I think, speaking as a layman now, that a number of educational programs, of which the new math was probably the most spectacular example, were seen as catastrophic failures--and they were sold, quite literally, to the American public to solve a particular kind of problem. The public response was, "This is what the experts came up with; it doesn't make any sense to us, but we'll trust them to do it." I think that the same kinds of programs in various areas of school--social studies, mathematics, science, anything you want--have been perceived to be failures, and I think there's a missing link. Maybe it's negative feedback or maybe it's positive feedback, but what's missing is the kind of discussion the people around this table are having. These new ideas need to be understood and supported by the people who are going to attend these institutions or undergo this process, no matter how it is done.

I think that if you had parents sitting around this table, they would love to send their kids to the kinds of schools you're describing. I can't really imagine any serious opposition; but I suspect at the moment there are very few schools or educational settings in which these kinds of principles are living and thriving. We were originally asking about whether our attempts to solve problems end up subscribing to Murphy's Law or are perceived as failures. It seems to me we've got great progress going on, but the selling of these ideas, if you wish, is a very serious impediment to making them come alive.

MODERATOR COVINGTON: *And selling them also to teachers.*

CLAIRE WEINSTEIN: I disagree with part of what you said, though. Yes, I think we need to sell these ideas, but no, I don't think we have quite as receptive an audience as you think. Maybe living in the South I'm a little more sensitive to this, but I can tell you there are a significant number of people who live where I do who don't want to hear *anything*

that we have just talked about. There is the right way, the Godly way, and the wrong way--and the right way is trying to approach the Godly way. There *is* absolute right and wrong. They don't want values education in schools; they don't want the kids thinking about that. They want them to learn what's right and to do it. The teachers have a terrible time, particularly teachers in the area of art, deciding on the "right" way to do art classes--creative writing, or anything like that. When they introduced a number of programs, parents were up in arms over them. The parents live in a world where it is, again, very black and white, and they don't want new programs. So, I agree that we need to sell this but I don't think we have as many people out there quite as vigorously wanting to buy it.

JIM CONNELL: They can vote with their feet and they have voted with their feet. There are excellent schools in any community of any size at all in this country, south or north, that offer exactly the kinds of things we're talking about: offering the kinds of processes, the collaboration, the emphasis on thinking skills, with caring, involved teachers and caring, involved parents. About 2% of the population is within those schools. Those schools are struggling. They're hurting. They're seen as radical; they're seen as outrageous. If you go in and examine them--and I've looked at case studies--they're excellent schools, outstanding schools, but they're outside the mainstream. They don't believe in SAT scores for students and they don't believe the SAT scores are ways in which their teachers should be evaluated. And even if you get people sitting around this table who would agree in principle that that's the way we want the schools to go, without the ultimate incentive systems that answer questions like, Can they still get into Yale? Can they still go to medical school? Can they still get the good job?, those schools will continue to struggle.

Rochester city schools are a very good case. You've got tremendous heterogeneity of race, of background--they're multicultural with a lot of opportunities for kids to see diverse points of view and try to arrive at consensus. But if you look at any of the middle- or upper-middle-class people who can afford to send their kids out to a white suburban school that puts 98% of their kids in college on a rigid curriculum, you'll see them take that choice. They won't put them in the Rochester city schools.

BARBARA McCOMBS: I'm going to take the other side and it's because I'm in a different context. Working in the world of a regional educational laboratory where it is our mission to go out and restructure education for the future and to be looking ahead to the 21st century, we are helping schools that are in the process of restructuring exactly along the lines that you were suggesting, and these ideas are not considered radical at all. We are out there training schools and administrators, but we're doing it at the building level. One of the things we have learned is that you can't do it at a district level; you can't do it at the State Department of Education level; you have to do it on an individual school building level or it just doesn't happen. You've got to get the staff aligned; you've got to first address the belief systems that the teachers and administrators have about effective education and find out what their goals are. We have a whole process called "Achieving Excellence, A-Plus" where we work with schools to do goal-setting, mission-building, and building of community. I see a lot of progress. I see some of what you're talking about, but I see that in the minority. We just had a conference in Aspen last October called "Redesigning Schools for 2020." It was an international conference and we worked with our

foreign neighbors on this same issue. I see a real exciting, challenging opportunity for us to really get in there and do this.

SCOTT PARIS: What you've just described is the process of negotiation that Jim talked about as being the model for classroom learning. You've talked about it as the model of the school and district, and it circumvents the problem of how do you communicate or inculcate community standards because you've set the process but not the content or the values.

To show you the opposite kind of solution, when I was in Moscow for the Ministry of Education Exchange a few years ago--the Soviets do a wonderful job of teaching children basic skills, they have no qualms about their achievement levels--I found that their big problem as part of peristroika was how to get development of the all-round personality of the child. We kept asking what that meant; it turned out to be creativity. What they were concerned about is how you get students to think creatively, critically--exactly the kinds of things *we're* worried about. They were worried about it, not because there was an achievement problem but because of their rote, superficial, algorithmic approach to learning. Their solution was to create a government mandate. "We will make a program and you will all follow it and you will be creative." This was so paradoxical to us. We didn't know how to point out to them that it was the wrong solution. American society, with a different set of values, has the possibility for setting up dynamic, negotiated, internal processes at school that can lead to creative solutions.

REDEFINING ACHIEVEMENT

MODERATOR COVINGTON: *Well, what do we, as cognitive psychologists want to bring to that negotiation table, if it's possible to negotiate?*

BOB OLTON: I think one thing you want to bring in is from the business world; it's called "positioning your product." How is it perceived? If you are perceived as an alternative form of education which is not going to achieve the values the parents have, and you do wonderful things in character development and stuff but as a substitute for academic achievement, you will never succeed. Exactly what you said, Jim, will happen.

JIM CONNELL: It's how you define the consensus that we want to get at--redefining, reconceptualizing what we mean by achievement. I mean, what have we achieved when we ask kids to achieve by these standards? Even a mediocre teacher can teach to an achievement test. When you get to a more qualitative assessment of the child, you have a portfolio that shows character, experience, projects and maybe you don't even have an S.A.T. score in that portfolio.

SCOTT PARIS: I'd like to suggest that you don't *allow* the S.A.T. score in that portfolio because--you said it before--when you play the ability game, somebody loses, or half of them lose. So, my suggestion for the ideal school is no comparative educational testing whatsoever. You either play the ability game or you don't, and I suggest that someone

ought to consider not playing it at all. Take all the money and the time that goes into those kinds of tests and put it back into instruction.

The other thing is that you simply ask teachers and principals to decide which test they use. They design it according to their school and their community and *they* become the decision makers for the assessments, not the State testing office and not the Congress.

Let me get on a soap box for a second: I think if you actually look at the dollar amount spent per pupil and the instructional time lost to these standardized tests, you'll find it's a staggering cost. Every local school board should recognize that a significant part of their time and budgets are devoted to test taking, test scoring, test reporting, and test management that serve almost no diagnostic or remedial function and which the consumers of the test--the teachers, the parents and the kids--are not informed about. Standardized testing is just a huge commercial endeavor motivated by two things: One is this false sense of accountability which tends to be a one-way street and the other is a basic mistrust of teachers' judgments of student progress.

BOB OLTON: What about competency tests?

SCOTT PARIS: Well, I'd like to hold the radical position for as long as possible and say let's only use tests that have an instructional benefit for the teachers and the students. Sorting kids by ability or entry or exit exams, I think, all run the risk of being extremely prejudicial and not helpful.

BARBARA McCOMBS: The thing that worries me about your suggestion is that, knowing the nature of the human beast, something would replace that need to compare ourselves. We all have ego needs for "how am I doing relative to..."--don't you think so?

JIM CONNELL: No, I don't think that is a fundamental human need. I think that is a culturally structured perception that is, granted, very ingrained in all of us. We compete for grants; we compete for publication; we compete for limited resources that not everyone can get. That's the way this society is set up. But the idea that you have to model the education of your children on society's capitalistic individual-difference-oriented structure is crazy, to me. I mean, why do we have to do it that way? Well, we have to do it that way because the consumers of these products, the Harvards and the Yales--I went to Yale and I can criticize them--say "Give us your best and your brightest; we don't want your dumbest and your slowest." Well, what if the schools say that's not our job and say, instead: "Our job is not to give you the best and the brightest; our job is to meet the goals that are set by our community, and the process of meeting those goals is set by the professionals in that community, and the goals that we have for our children are X,Y and Z, and our goal is that 100% of our children meet those goals--then we've done it, we've done our job. You figure out how you want to admit people to Harvard."

BARBARA McCOMBS: But if you don't replace what *is* with a well thought-out systematic alternative, something else will pop in. That was my point. If we change the schools, if we go to your system and have no comparative evaluations of any kind, then a

student walks out the door and the first thing they face is a society that lives by a different set of standards. In other words, we have to be real careful as we introduce these radical changes that we're equipping kids with a recognition that they are instrumental in the change process.

JIM CONNELL: Many of these institutions, like major corporations, are not looking at test scores anymore. They're not looking at grades because they've looked at the research that shows high school grades predict zero about eventual success. What predicts is what the person brings into the situation motivationally, cognitively, interpersonally. It's what is in their portfolio. It's the letters of recommendation by people who know the person well. Those are the kinds of things that predict how the person is going to do.

So, I don't think the need to compare is a basic one. I think it's a basic need for people to believe that they have a chance to get what they want--and we bastardize that by making "what we want to be" into "being better than this other person."

MODERATOR COVINGTON: *Why is this competency-based individualized value structure that we're talking about likely to be more important in the future than it is now or was in the past? Is this going to be a survival necessity in the future: that people really self-judge themselves regarding competency?*

DAVID BERGIN: I think we need a backdrop that anything we talk about needs to be thought of, at some point, in terms of social problems. I think family cohesion--both in families that are intact and divorced, drugs, disparities in income, and so on, are the major problems in the country right now. Traditionally, we've used the system to select the best people. Yet a lot of people fall out and they're considered the dregs of society or whatever; that selection process is going to become more of a problem in the future. To the degree we can make everybody competent, and feel competent, we'll have a better society and happier people.

To go back a little, one of the purposes of schooling is perhaps to pair skill with will, as Scott, I think, has pointed out. That is, people need the strategies *and* the motivation to succeed. It's not just effort. So, one purpose of schooling would be to help people who aren't able to figure out strategies on their own. Before this meeting, Claire and I were talking about how we both had the experience as graduate students of sitting dumbfounded when a professor called an expert on the telephone to ask some question about the literature or something--"Oh, you mean you can phone an expert to find out something?" We had never thought about doing that. People shouldn't have to get to graduate school before they figure that out.

INFORMATION ACCESS

MODERATOR COVINGTON: *What thoughts do you have, Bob, regarding who you call up for information and how that's going to be handled?*

BOB OLTON: It's interesting. I am the research director in a company that makes products, some of which are bought by libraries. One of the first things I do is to go around and talk to reference librarians about what kinds of questions they get asked. I made an informal list of the things that people want to know about and don't know how to find. In California, number one is information about automobiles; they want the blue book or Consumer Reports or something. However, this request is eclipsed in terms of seriousness and scope by information requests about business--particularly, how to find a job; how to find out about certain companies; how to find out about businesses one might start or opportunities one might pursue. Health information is another area, and you can imagine the embarrassment of asking a librarian about some disease you'd rather not talk about. I think students should be prepared to cope with these kinds of situations, whatever sort of educational background they have.

SCOTT PARIS: There's a tie between what you're saying and what was said before about the need for curricula that emphasize skills for daily activities, skills that fall within the social-problems area that David was stressing, whether it's self-help or other things.

MODERATOR COVINGTON: *And the notion of semi-permeable boundaries between institutions, where people see libraries as the center of an educational process, not as the last resort.*

SCOTT PARIS: It would be nice to be able to go to a school and drop in and ask someone those kinds of questions.

JIM CONNELL: I think that in moving toward the future the question is not going to be, can I get the information? It's going to be what's the most efficient way I can get it? And with the computer efficiency that we're looking at in the future, there's no reason to think that we wouldn't have some sort of centralized computer resource in the community that can be accessed from and away from school sites... at some point from the home as well. You could make possible a sort of community of learning instead of a school per se, a community of learning where parents and children and teachers are all learning and teaching at the same time.

GOAL-BASED EDUCATION

MODERATOR COVINGTON: *Are we talking here about problem-based education--that is, how to get a job, how to fix a car, how to stop doing drugs?*

BOB OLTON: I'd like to think of it as goal-based education.

MODERATOR COVINGTON: *And you go to different places to answer the different goals and acquaint yourself with different people?*

JIM CONNELL: I think the idea of learning how one goes about getting what one wants is an important thing, as is learning that you have the capacity to do that, or learning that

you don't have the capacity. Children now and children in the year 2000 are going to be the ones who are the goal-setters for the next generation. They've got to learn somehow in their early life how one sets a goal for oneself and how one decides what's important in one's life; that is where negotiation and consensus skills come in.

CLAIRE WEINSTEIN: But, Jim, when you talk about these kinds of things, aren't you pointing out some other changes that are also necessary and that we don't really pay as much attention to? If you take a kid who grew up like I did, in a ghetto, I'm now doing things I didn't even know existed when I was a kid. I wouldn't have *had* the goal so I would never have taken that route. For me, some of the experiences I did have--in school and with individual teachers--helped open that up. So, when we think about the societal role of education, we'll need to teach goal setting, goal using, goal re-evaluation--all of these lifelong-learning concepts related to goals. We'll need to help people see some of that variety; otherwise, accidents of birth, accidents of location, accidents of experience, and a lot of other haphazard things will be a tremendous determinant of what people do, and I'm not sure I feel comfortable with that.

BARBARA McCOMBS: Well, I think that's the crux of the problem. I want to make two points. What you're saying and, in fact, a question you raised a few minutes ago, is this: Is a competence-based value system really going to be our survival mechanism for the future? I agree in part, but I think even more critical is instilling in children the importance of recognizing that they are the constructors of their reality; they are the creators of their experience; they are the ones who are going to form the sense of who they are, what they can do. I think we can give them strategy training not only in goal-setting, but also in getting in touch with their deepest passions, learning what the driving thing in their lives is.

We also understand from a developmental perspective that kids, particularly those from disadvantaged environments who lack the kind of social support that's going to allow them to develop a positive sense of who they are and what the range of their options and possibilities are, need somebody to help them do that. I can't think of a single case of someone coming out of a really bad environment who didn't say, "Well there was this teacher" or "There was this person who really helped me see my way out." We are doing a project in a Hispanic school in Denver where the majority of kids are not only multicultural, but they don't speak the language, they may not have the support at home, and the teachers are not of their culture. We are helping teachers understand the importance of these kids having that social support, having a mentor they can turn to who values them as an individual, who will help them accomplish not only the range of options they can open up to them, but also help them acquire a belief in themselves.

TESTING, TEXTBOOKS, AND TEACHER DEVELOPMENT

SCOTT PARIS: I'm very much in tune with what you're saying. I think we have consensus about personal growth and goals for education; I'd like to lay out three kinds of social-institutional problems that a foundation or research effort might want to address.

I guess the preface to this is that I think these are distinctly American problems. They're all motivated by money, they're all redressed, I think, by changes in policy, and they're not evident in all of the countries in the world. The first problem is what I think of as an American preoccupation with assessment which is a multibillion dollar industry that takes away time, resources, and energy from other educational activities.

I have so many stories about this. Let me just give you a couple of quick ones. I'm appalled when teachers tell me that they give their skills test in October and for the first six weeks of the school year, they prepare their kids to take it. As soon as that's over, then they start their curriculum. After hearing this from several hundred teachers in Florida, I know that, in fact, thousands of Florida kids don't have any curriculum for six weeks except to get ready for the test.

Then, I know there's a huge movement to improve minority kids' test scores by teaching them how to take multiple-choice tests. So, millions of Black and impoverished kids, kids from urban settings who don't typically score well on these tests, now spend a considerable amount of their schooling preparing to take multiple-choice tests, which, I think, is preposterous.

Another motive is *parents'* desire to have children take tests. They want accountability; they want to know their real estate values are good; they want to know their school is better than someone else's. There are all kinds of motives. We've done a survey in Michigan and found that 87% of the parents thought it was a good idea for their kids to take a test to meet the Michigan Educational Assessment of Progress Criteria. It's a criterion-reference test which means you have to get 85% of the objectives right to *pass*. So, these parents are saying "My kid had an 85 or 87 or 91", which means he barely passed--those are average scores--but 72% of the parents think that is their kid's rank in class and so they say, "great test," which is a fundamental misunderstanding of the meaning of the scores and of the motives of the test. Assessment, I think, deserves a lot of scrutiny because if we changed our policies and practices, we could change the way students and teachers interact on the classroom level and increase the amount of time and resources now devoted to other educational enterprises.

The second point I want to make is about publishers of curricula and textbooks, and no place is more aware of this problem than California, which sets the agenda for a great deal of the country. The amount of money that goes into advertisement and promotion of those products is unbelievable. And if you examine the politics and practices that surround textbook adoptions, what you'll find is marketing concerns, advertising concerns, and sometimes less-than-ethical practices, all designed to persuade teachers and committees to adopt textbooks. As one of the people who participated in choosing textbooks, I've been absolutely amazed at the practices that go on. The way money affects the transmission of information about important issues in education, the potential conflicts of interest, and the fact that the *publishers* are creating an agenda for school teachers and schools, I think, deserves scrutiny. It's not necessarily the case that we should have a government-mandated program like those in Taiwan, Japan, the Soviet Union, and other countries; on the other hand, when people look at these programs as models of excellence, we ought to look at many of the parameters that are different.

A third point is about the professional development of teachers which, I think, is an unexamined disaster. Teachers are constantly searching for more information and better ways of teaching. Their motivation is extraordinary. The quality of information that reaches them is dismal, and what there is depends on publishers who fund those speaking engagements; it depends on charisma in salesmanship; it depends on entrepreneurial, independent business activities; it's motivated by money; it's not necessarily tried-and-true information. The academic community is unwilling or unable to be effective communicators with educational practitioners, and the faults we talk about exist because the people who fill that gap are sometimes less qualified or are motivated by less-than-honorable reasons.

Anyway, those are three kinds of impediments I see to the development of effective thinking skills. If we have assessment devices that are aligned with the curriculum and are instructionally valid, if we have professional development of teachers that actually inculcates them with skills and knowledge about motivation and cognition, and if we have a curriculum with materials and textbooks that support what we believe are useful practices and knowledge, then, I believe, our schools would exhibit critical thinking to the community.

MODERATOR COVINGTON: *We have come a far distance using only one problem card. If I could summarize, I think there is general consensus about what students might look like in the ideal context of the future: They should be negotiators, problem finders, able to take advantage of serendipitous situations, to see progress and retrogression where they occur, to set goals with a view of individual self-development that is independent of comparison to others, and to regard effort and efficacy as the crucial values rather than ability per se. We've also talked about some of the issues and obstacles that get in the way of this kind of progress.*

GETTING THERE FROM HERE

MODERATOR COVINGTON: *I think what would be useful now would be a discussion of how we get there from here. So, I would raise the questions, "What aspects of your research hold the most promise and implications for effective schooling in the year 2050?", and, "Assuming that you had the complete freedom to chose, what research questions would you now pursue if your objective was to make an impact in the future?" Again, I don't want to act as a traffic cop, but I will simply invite comments for a few minutes from each of you in turn, and then as it seems appropriate, we can open things for cross discussion. David, how would you react to these very difficult questions?*

TRANSFER OF LEARNING SKILLS

DAVID BERGIN: One of my questions would be: What *are* the purposes of schooling? We need to think about that. We'd like to have people learn the basic skills--reading and writing, and so on. We'd like them to become more competent users of strategies, coupling strategic thinking with motivation so that they're competent learners, and then use those things in and out of the school domain. So, one of my questions would be: Do students, indeed, learn things in school that they can use outside of school? And, if they do--which

some of us might doubt--do they use them in fact? I'd like to defer to Claire about fostering transfer of training within the school, across domains within the school, and then outside of school.

CLAIRE WEINSTEIN: Well, this may be a little more controversial, but one thing is looking more at interactions. We talk about motivation coming more as a *result* than anything else and how motivation affects the skill-and-will dimensions that Scott talks about so much. In our own work, we know a lot about teaching cognitive strategies and we know a lot about the kinds that are very useful for how we define academic learning *now*. We don't know as much about how to get students to actually use it, or to know when it's appropriate to use that sort of conditional knowledge.

One of the things that gets to the transfer question is the generic versus content-specific dimension. We talked about a number of things here in terms of content-specificity, but I also think that we need to think at a generic level, and this may be more controversial. There are a lot of problem-solving skills, decision-making skills, and negotiation skills, as well as learning and coping strategies that we've talked about today that have some "domain specificity," in the sense that they're specifically related to an interpersonal problem, or a math problem, or a reading problem, even fixing or buying a car. But there's also a degree to which these specific tasks are generalizable, and I think that's a very important issue for us to be examining now, because the degree to which we can teach things at a generic level is going to be very facilitative in the future in preparing people for lifelong learning.

If you look at the findings now coming out of the Department of Labor, you'll find the data that they're basing them on is already out of date; they are already showing career changes of three to four times and job changes of five to seven times as being absolutely routine. On that basis, if you look at the training models that exist in education today, in spite of saying how different the two systems are, you'll see they're geared very much to helping someone get a job--and that's kind of silly: Which of those seven jobs are we preparing them for? Even within the same job, people are having to learn new things and do new things to advance now, and that's only going to increase in the future. So, one of the major issues from my own research perspective is looking more and more at self-regulation, looking more at generic strategies and where they fit, and looking at how we're going to be able to foster the development of those kinds of strategies in the future. Right now we know very little, relatively speaking, about those areas.

DAVID BERGIN: I think one thing we've learned is that we shouldn't just look at generic skills or just look at content. Let's finally learn balance in all things. In our previous attempts at curriculum development, like the new math, which seemed a failure, we completely threw out the baby with the bath water. If you do anything now that smacks of new math, people sort of laugh at you: "Didn't you learn back in the '60s that it doesn't work?" Well, there were things in there that worked. And that's one thing we should learn.

MODERATOR COVINGTON: *For too long a time I think there's been a false debate about specificity and generality and it's come out of a lot of data that's been flawed.*

CLAIRE WEINSTEIN: I think it's true that as we develop a degree of expertise we have different kinds of needs, but I think in any job, to stay fresh and vibrant in a highly changing society, we're going to be constantly moving back and forth from the generic to the specific. We're still debating about whether the two things are really different or not. I think it's a silly debate.

MODERATOR COVINGTON: *Can we identify this as an issue we ought to be dealing with for that distant day, which isn't that far off?*

BARBARA McCOMBS: I think it's real important. In some research I was involved with a while back we were trying to teach certain job-relevant social skills--in particular how to accept criticism or ask for help on the job--to learning-handicapped kids who were making the transition from high school into the working world. We wanted to produce not only a training delivery medium, but a training strategy that would promote optimum transfer and generalization of these skills. What we learned kind of accidentally is that absolutely the most critical thing to insure transfer and generalization is *over-learning* the general model--exposing them to a number of different contacts and giving them repeated opportunities to practice the general model.

DAVID BERGIN: Students don't learn strategies unless they're made explicit, as you did--and that means that teachers have to make them explicit. Most teachers are incapable of it, partly because the professors who trained them were incapable of it, which means that we, as professors, need to help students over-learn them in all our classes and then hope, pray and follow up with them, somehow, with in-service training to be sure they're doing it. Otherwise these strategies are going to disappear before they get to the kids.

TEACHING THINKING STRATEGIES

MODERATOR COVINGTON: *Scott, is* reading *a vehicle for some of these cognitive objectives?*

SCOTT PARIS: Literacy is a very rich area for teaching thinking strategies--brainstorming, editing, revising, doing those wonderful things we'd like to see across the curriculum. In literacy, people talk about strategies you can use before reading or writing, during reading or writing, and after reading and writing. The Association for Supervision and Curriculum Development (ASCD) and others make those distinctions. Indeed, we're doing just what David said--trying to help teachers pass that on to kids, trying to make strategies more sensible and tangible and explicit. Many others are trying to increase awareness of what these strategies are, how they're applied, when they've worked, why they've worked, and so. That's the good news. The bad news is that teachers oftentimes look for recipes that are generic and applied in a rigid fashion. They look for a simple, superficial way. In some ways, teachers can make a routine out of anything.

MODERATOR COVINGTON: *Is that the same as turning play into work?*

SCOTT PARIS: Exactly, yes. And in their effort to simplify and make it memorable, they often make it such a routine that it's boring, algorithmic and applied without thinking. We see students using what I call "buggy algorithms" in literacy in the same way they use them in math. Kids, essentially, find the short cut. They make an algorithm out of a strategy. If you want to summarize something you're reading, what's the best way to do it? Copy a few sentences, then delete a few; copy a few, delete a few. It's been called the "copy/delete strategy."

CLAIRE WEINSTEIN: There are features of that in study strategies; it's the damnedest thing you ever saw. You go in to watch people who are supposedly teaching strategic behavior and they're converting it all to algorithms! It's unbelievable.

MODERATOR COVINGTON: *What do you provide a teacher?*

SCOTT PARIS: Well, I'll be interested in other people's reactions, but the insight I've gotten over the last ten years is that you really need to provide them with a clear set of ideas; they need to know what the strategies are, and you can do this either with materials or in workshops. You also need to provide them with an instructional vehicle, whether that's materials, a dialogue, a format, reciprocal teaching, cooperative groups, jigsaw methods--whatever allows teachers and students to share that information. In my opinion, almost all the successful thinking programs have dialogue at the core, it's people talking about the process of solving problems as they solve the problems, and that seems to be a critical component. So, if we can pass on the knowledge base and the vehicle to teachers, that seems to help.

CLAIRE WEINSTEIN: There is a very serious problem we go through all the time, even with college instructors, which is that there's just not enough time for teachers to practice these things and get feedback before they're certified to go out and do it. They are certified at a very superficial level, so though they will often start out doing it heuristically, they end up doing it algorithmically because training and implementation have not been integrated for any length of time. The support just isn't there. So I think that in addition to what you mentioned, practice time and feedback has to be extended to teachers in their initial training.

BARBARA McCOMBS: And also as *ongoing* support; it's absolutely critical. You can't expect to go in for a two-day, or three-day workshop and expect people who are already struggling to do what you're saying.

DEVELOPING SCHEMAS

MODERATOR COVINGTON: *Bob, is there a potential for this kind of dialog in what you see as the libraries of the future?*

BOB OLTON: My metaphor would be that education is somewhat like episodes from Star Trek. I'm not a Trekky, but the program interests me because here is a drama-based

program which has existed in commercial television for more than twenty years. It obviously is resonating to something fairly fundamental in what gives people intellectual adventure. My schema for education, considering you're going to have five or seven job changes in your career life and live in different places and last through revolutions and all the rest, is that you are all of a sudden beamed down to a strange planet and your job is to find out what's going on here, and transfer your skills, abilities, and knowledge to this situation to see if you can figure it out. Within that general approach, one cognitive skill I haven't heard mentioned explicitly around here, although we've talked about it implicitly, is the idea of learning how to construct a schema given only little bits of information here and there. The task for students would be to figure out what the rules are and bring to bear everything they might know from the real world, from school or from somewhere else, on this miniature world. I think if I had a chance to explore cognitive skills between now and the year 2050, that would be my overall schema for looking into this.

I would like to contribute one concrete example, something my company did before I joined them but which still astonishes some people. Here we are in the age of information where, again, libraries are sources of vast quantities of information. I think we all agree that information overload and learning how to cope with its challenges is something everybody is going to need to face in the year 2050. One of my company's big breakthroughs was to invent a device for use in both public and academic libraries that does everything librarians say you shouldn't do if you want to go after information. To use this device, for example, you don't have to specify your search; you don't have to know what you're really looking for; you don't have to understand the problem. You don't do what you would do if you called up your university librarian and requested a really skilled search on a particular concept. What you do is you sit down in front of a computer terminal and you type in whatever it is you happen to be interested in. We have kept records, actually, about what college students type in; it's the sort of thing you'd expect--surrogate motherhood, AIDS, Nicaragua, condoms and all the rest. When they're starting work on a term paper, you can compare what they type in with the subject heading from which they eventually print out their citations. What you find is that this device has helped them *clarify their thoughts*. They get into something like drug abuse and there are all these subheadings to drug abuse--drug abuse in the work place; drug abuse in athletes; preventing drug abuse, and so forth. Students will snoop around a bit and say, "Well, let's see what's going on in prevention" and get all kinds of headlines, you know and then say, "That's not really what I'd like. Let's look at drug abuse in the work place and see what's going on there." Eventually, it's as though you have given them help in constructing a scheme they didn't have before. Now this is in opposition to the way librarians work, which is: "Tell me your schema and I'll find some information that's relevant." I would use this anecdote as an example of the kinds of things I think educators might develop. So that's my long-winded answer to your question, Marty.

UNDOING EDUCATIONAL BUREAUCRACIES

JIM CONNELL: I think of the transition of how we get there from here in two ways, both equally important: One is what are the things we have to *undo* that are already done and the other is what are the things we have to do. The former may be more important than

the latter--and harder to do. It's easier to start something new than it is to get rid of something old. I think the primary thing we need to undo is the bureaucratization of education which shows up in classrooms, in what goes on between teachers and students, between parents and teachers, and among teachers themselves. And another thing to undo, as Scott pointed out, is the publishing bureaucracy. Publishers shouldn't be telling us what it is that should go on in schools. We should be telling them what should go on in schools and they should respond to what we say. So, rather than having a menu of books selected by the state--and there's another bureaucracy--it seems to me that the publisher should contract with the districts to produce curricular materials that the district thinks are important for their students to learn.

In the Rochester school district, for every administrator there are eight teachers, and for every teacher there's twenty-five or twenty-eight students. That means it takes more administrators to watch teachers than it does teachers to watch students. Perhaps we should at least calibrate our bureaucracy such that there would be no more administrators to teachers than teachers to students. We don't need a lot of people watching what we're doing, and partly we have people watching what we're doing because of the assessment bureaucracy. As Scott pointed out, economically and in terms of psychic energy, the number of people who are worried about how we're going to find out whether we're doing what we're supposed to be doing is ridiculous.

The third bureaucracy that needs to be undone is teacher education. In Rochester, we are trying to do these fairly radical reforms in a city school district, but the models we're allowed to put out as far as professional development is concerned are regulated by the State, whose regulations apply to Rochester, to Watertown, and to small rural communities; there's no way that one set of regulations is going to be able to represent that diversity. It makes no sense at all.

One thing we're trying in Rochester is to convince the State to give us five years. "Don't tell us what we have to do for five years and we'll come back to you with a proposal that we would like you to certify as the regulations in Rochester. We at the University, in collaboration with the district, will decide what it is we think teachers need to know in this area and then we can do that on a national scale." Districts have a menu of programs for professional development and they'll pick which ones fit in with what they want to do in their district; it's a free-market situation.

SCOTT PARIS: Bureaucracies sometimes maintain the status quo, too. Whether we're talking about funding schools by property taxes that maintain unequal opportunities for kids or whether we're talking about private versus public or urban versus rural or other kinds of schools, there are a significant number of kids who don't have access to quality education, oftentimes by virtue of money that's set up by bureaucracies.

BARBARA McCOMBS: Picking up on the transition issue and the problem of undoing what currently exists, part of what makes that problem not so tough is when you reach a point where there's a critical mass of people who understand that there really is a problem. I think that the first job that needs to be done to facilitate that process is educating people

to the nature of the problem; and I'm encouraged to see Mary Futrell, the president of the National Education Association, running around the country devoting enormous amounts of her time to telling people the seriousness of the problem. We have other people, Albert Shanker with the American Federation of Teachers, doing the same kind of thing. We're real close to approaching the critical mass that it's going to take to work on undoing what exists. I see what's happening in the Chicago public schools where they just said "We don't want this school board anymore; we don't want this bureaucracy anymore, and we're going to do something about it." We're starting to get demonstration sites where people are seeing what can be done and taking control.

JIM CONNELL: A critical research agenda, and not for an ideal world but in the present, is to have a systematic study from multiple methodological points of view--quantitative, qualitative, multidisciplinary--on the various attempts to achieve the goals we're talking about around this table. There are people trying to de-bureaucratize, trying to get the control of education back in the hands of the educators. Target programs around the country are already trying to do that. It would be valuable to document, using a rich, descriptive style, just what is going on and what the impediments are. We're hypothesizing the things that need to be undone. Some people are trying to undo those now and they're running into problems. If we could learn from their mistakes and their successes, that would be good.

BARBARA McCOMBS: Yes. We're doing this at my laboratory. There are nearly two thousand alternative schools across the country at all levels--grade schools, middle schools, and high schools. Half of those are private and half are public. They, obviously, have overcome tremendous obstacles...

MODERATOR COVINGTON: *Could you clarify what you mean by alternative schools?*

BARBARA McCOMBS: Well, these are schools that were started in large part because they viewed traditional education as obviously failing for a lot of kids. They began building alternative schools for those kids who dropped out of the traditional educational system. The private ones were started because some people said, "I don't like what's going on in traditional education and I want to do something." Some of those are religious schools, some are Montessori, but all of them had different battles to fight. In the case of the public schools, they have to overcome bureaucracy. In the case of private schools, their biggest battle is getting money to fund the innovations they want. So, we're studying these two groups in a comprehensive survey to see what it is they did; what the battles were; what the schools look like; what assumptions about education they gave up--like the need for a fifty-minute period, or the need for a certain kind of curriculum, or such traditional trappings. I think some exciting things are going to come out of that.

BUSINESS, EDUCATION, COMPETITION

MODERATOR COVINGTON: *Just to add to that laundry list of obstacles, and it's implicit in what we said earlier this morning, schools have been handmaidens to business, industry, and*

universities, in terms of selection procedure, for far too long. We simply must disentangle that function from the legitimate function of schools, as you were stating.

JIM CONNELL: We've got an interesting situation now: We've got some major educational reforms under way in particular sites, not just Rochester, other places in the country, too, where you have a marriage between industry and the school systems, where you have bucks coming in from real estate taxes as well as from industry's coffers into education. My fear--and this is going to raise some hackles--is that marriage is based on a false contract, which is one of the reasons industry is very interested in public education. They tie it directly to our loss in competitiveness to the Japanese, the Germans, et cetera, and one of the things they think they're going to get out of this marriage, and I'll put it bluntly, is a bunch of Japanese and German kids sitting in our classrooms working twelve hours a day. I think that reformers, such as myself and other people, have led them to believe that if they let us do what we need to do to change the educational system, then we'll turn out kids that are just like these Japanese and German kids who are beating us on these tests that we all think are so important.

I'm not going to say it was the wrong thing to do nor does it continue to be the wrong thing to do; we had to get something started and we have to have resources that will give us time, potentially, to re-educate the industries that are supporting education. I think the bottom line is that what we're looking for is not homogeneity of outcomes but really it is to get back to what it was that made us competitive in the first place--which was not the ability to turn out products more cheaply than anybody else: it was the ability to create products that the world wanted. Those products won't be cars or steam engines anymore. They may be new ways of understanding information or new services that people want across the world as economic conditions hopefully improve. But, it's innovation; it's creativity; it's critical thinking, and critical thinking means *criticizing* as well as just thinking harder. It means questioning assumptions that we're working with, and that means diversity is of ultimate importance. Everybody is saying, "Oh, my God, what are we going to do with all these minorities because we know they're going to be a problem." Baloney; they're part of the *solution*, because what we're going to be talking about and learning about is diversity. Students are going to learn about different points of view, different backgrounds, instead of trying to look like the Japanese who have a homogeneous society or the Germans who have a relatively homogeneous society. In those places there is no discussion about what's important. They know what's important. We're still going to have to discuss what's important, we're going to have to set goals and negotiate on goals--and that's part of what it's about to live in America and what it is that makes us strong. We've got to replace the idea that we're going to "beat the blank out of the Germans" in twenty years if you let us do these educational reforms.

MODERATOR COVINGTON: *As you spoke, I was thinking of ways business and industry might expand their criteria for selection of workers.*

BOB OLTON: Your camel already has its nose in the tent. When it comes to management selection, it is already done on the basis of portfolios. But I also think, Jim, that the needs of management training--things like how you make people work together and how you

stimulate some new and original solutions to perplexing problems for which nobody has all the necessary wisdom to solve single-handedly--are also being addressed in some forms. Businesses are already paying the bills of their managers and internal personnel to learn these skills. Sometimes informally they provide in-house workshops, sometimes formally they send people off to a local community college. I think if this practice moved down the management chain a little bit, you'd find great receptivity among workers to be involved with this type of training. I think in some ways business is way ahead of the educational community in assessing what counts.

JIM CONNELL: I think we do need to address, though, the different parts of the contract between business and education. Are we promising homogeneity of outcomes? Kids with portfolios that all look the same?

Also, I think we need to be looking at more than how industry relates to education in terms of its incentives and how it sets parameters for what we should be doing in school; we should also look at what they are doing in the everyday life of children and how we can renegotiate that. Some good models for a high school kid are having a mentor at school and a mentor at an after-school job, who would talk to each other about how the kid is doing. The danger now is that high-schoolers are a cheap labor force being exploited to the detriment of their school life.

GLOBAL EDUCATION

BARBARA McCOMBS: I'd like to switch just a little bit. One thing that seems so critical to me in terms of how we can prepare our kids for the future has to do with one thing we can take an educated guess about--that we will be a more global society and no longer able to ignore the famines and the droughts and the problems going on globally. And our kids need to know how to live in that kind of environment. One of the things that we talked about at the international 2020 conference our lab had last fall had to do with computer technology. We are already setting up electronic networks in Germany, Holland, and England where students can share their experiences and talk to one another in a classroom. I think of things like that--not just using technology but also looking ahead to how we can facilitate this global perspective among the kids. We are international problem solvers now and we have to work on some of these things, such as the environment, together.

DAVID BERGIN: Well, the United States should be the most global country in the world because there are the most minorities here. We talked about that. In fact, we seem to be one of the least global in the world. When you look within the country, the white mainstream is on top and the Blacks and the Hispanics are on the bottom and that affects how our students perceive other countries. If we can't be global within our country, it will be hard to be global around the world.

MODERATOR COVINGTON: *Of course, the policy implications of that suggest plurality. We were talking about various school sites regionally, locally, having various value systems. What sorts of dimensions might we consider culturally that would affect cognitive development or the way we train and teach?*

JIM CONNELL: I think one issue is the issue of color; the meaning of color has to be made part of the everyday life of children and the curriculum as well. I have a couple of colleagues on the Social Science Research Council that were studying individual family processes involved in chronic urban poverty. Both were minority colleagues. Rather than playing down color, saying "let's act like everybody is the same", they saw an important aspect of education in the future to be an emphasis on the experience of color, what its meaning is in this culture from a historical, ethnological and political perspective. People aren't treated the same, and kids need to know and understand that.

They also talk about the "as-if" phenomenon. Kids are trying to learn to treat each other *as if* there aren't differences between them. So I suggest cognitive skills in the curriculum for dealing with diversity of all different kinds, including race. What strategies are available for dealing with people who don't necessarily share some of the background you have?

MODERATOR COVINGTON: *Okay, taking the transition one step further, are there some content-bound principles we might suggest that would enhance these objectives? I might suggest as an opener something like the "tragedy of the commons," the notion that people don't share resources equally or equitably. This, of course, applies globally. Other than reading and writing skills what might make up the subject matter content of the future?*

BARBARA McCOMBS: Just as we're talking about work-related contexts for learning certain kinds of cognitive skills, I think national issues like this are the context for learning values and social judgment and some other kinds of skills we'd like our kids to develop.

FAMILIES, SCHOOL, AND COMMUNITY

JIM CONNELL: Parenting, one of the most important human enterprises we have, is probably the least formalized--and I don't mean formalized in the bad sense--but paid the least attention to by people who are responsible for education. Children need to know what it's like to be parents.

SCOTT PARIS: I'm concerned more with how to involve the family and the community as active agents with the teachers and with the schools. We've talked about coaching and apprenticing and mentoring, and having relationships that facilitate negotiation and exchange among people--motivational as well as cognitive--and I keep thinking that we're leaving out the most significant people in the child's life: the brothers and the sisters and the mothers and the fathers and the people at home who oftentimes feel ignored by the school; they feel threatened by the school, unwanted. Instead of having any kind of rapprochement, what we have is a distance between the effective mediators.

I'm not sure there's a simple solution, but if I looked fifty years into the future and saw parents who couldn't read or write and who weren't afraid to come to a school to find out what their kids were doing--not even necessarily to learn to read and write themselves--but who felt at least welcome in the school and part of their child's development, I think that would be a significant step.

BARBARA McCOMBS: They are already starting to do some family literacy projects where they're bringing illiterate--broadly defined as not knowing how to get a job or how to get out of the welfare cycle, for example--families together to work on some experimental projects, or to come in and work with the kids while they're learning.

SCOTT PARIS: It's important to know how to do it without being patronizing or demeaning.

CLAIRE WEINSTEIN: Well, all that changes the nature of how we're looking at expertise. I mean, for a long time we've had a strange way of documenting what we considered "expertise"; it was as if expertise meant you had the keys to the kingdom of hidden knowledge and, therefore, you could make all of these decisions. I think the point that, Scott, you, and the others are making is that we need to redefine how we think about expertise and who has it. Brothers, sisters, parents, community people--they all have something to offer in terms of what happens to the kids.

When I tried to go to school as a guardian of one of my nieces, the response I received from the school was, "We know what's best." I said, "How can you tell me that? How can you tell me you know what's best for my kid? I know much more about her than you'll ever know about her." They were absolutely appalled at that response. They thought that was an incredibly naive response on my part to think that I had any relevant information about how her education should be handled.

JIM CONNELL: But where that comes from though, is very understandable. Again, I think we need to have historical perspective on this, which is that part of the problem in the teaching profession has been the idea that there isn't a knowledge base for the profession of teaching as there is for medicine. Even there, people are now going to their doctors and saying, "What do you mean I need to do X, Y and Z? You don't know me. What do you mean I need to relax? Do you know anything about me? Of course I need to relax, but you're going to tell me how to relax? Give me a break." We're questioning the professional's intuitiveness in a system in which we have a rich knowledge base to come from, but I think at the same time we have to maintain the notion that there is a knowledge base that underlies or underpins what teachers do and there is some expertise associated with that.

CLAIRE WEINSTEIN: We need a team approach. Look at what they do in Special Ed. I always used to think, "I wish my kid could be in Special Ed. They get an individual education plan worked out by psychologists, by the teacher, by the parents, and by other specialists." I kept thinking "This is terrific; how can I get her in there?"

JIM CONNELL: One area we haven't talked about in the transition from where we've come from to where we're going is what one of my colleagues from Rochester calls "the killing field"--from the movie. It's a dramatic metaphor, but I think it's right, the point being that we could be lost or killed in the transition. One of the things we have to do to prevent that is to get consensus on our goals and consensus that the professionals who have the knowledge base are going to take the lead in determining the processes that go

on in the schools--and we need to have a time line on it--an agreement that change is not going to happen over night.

So, in addition to an assessment frenzy in the community, we have a time frenzy: when communities or individuals give money for programs, they want to see things happen quickly. Part of our cultural myth in this country is that once you've given away money you're going to get screwed, and I think that those communities putting resources into education still have that fear. So we need a timeline that's workable and that allows us to move ahead.

MODERATOR COVINGTON: *That analogy is an interesting one. The questions might then become: What sorts of things do we hold in place temporarily that build public confidence through time? Demonstration schools where people can see something working? Or that order has been brought out of the chaos?*

BARBARA McCOMBS: I think we also need to get a volunteer aspect to it. I mean, we can't go into a community and fix somebody else's wagon. We have to approach the problem very sensibly and not force.

JIM CONNELL: It's also important that the mission is a shared one; that it's not just teachers changing--it's parents and the university and the schools changing. And it's not just the university offering better teacher-education programs, it's the cooperation of the school systems in allowing teachers time to critically reflect on what they're doing. Teachers don't have any more time than the rest of us, and to say "Now do some serious thinking about the assumptions that you're making about your teaching" isn't going to work.

FUTURE RESEARCH

MODERATOR COVINGTON: *How do we see the role of funding agencies, broadly defined? Is it a matter of arranging and rearranging public policy and raising consciousness levels about issues? What would you like to see from your own perspectives?*

SCOTT PARIS: I think there is power in individual cases and in demonstrations of successful districts. Each district might deal with different problems and come up with different solutions, set different time lines, and have different rates of progress and so on, but they can create a model process so that, if given the resources--and that means giving teachers the time, the substitutes, the money, and the freedom they need--they can, in conjunction with a researched-based team, collect data on the entire process and see what happens after a year or two or three or four. Then you can provide documented and reasonable expectations for other districts.

BARBARA McCOMBS: It might be nice to have a broader-based look at what's happening with some of the challenge grants given to existing projects. We need to see what kinds of programs people are generating with this money and how are they going about it.

JIM CONNELL: Well, the Casey Foundation has taken an interesting approach. I understand they have a $50,000,000 grant that they give to five cities for five years, about $10,000,000 each. What they've done is to structure the process by which they see reform working, which is linking up all of the agencies that come in contact with children of the underclass. They have developed a kind of case-management model where they link social workers with schools and with parents. Their funding strategy is more directive than just, "Show us what you can do."

I would like to agree with Scott and Barbara that funds could also be fairly efficiently used to find out not only what things *are* working but what things *aren't* working. It's not always a good idea to base funding on the criterion of "let's make sure it's going to work." It may be a matter of looking at failed motivations. It's like the "non-significant findings" file. I think it would be a very creative thing to send out an RFP [Request for Proposals] to say "Tell me about the disasters--give me a reconstruction or an anatomy of educational disasters."

DAVID BERGIN: That would be useful because those failed programs might have had the exact same goals you have, but the implementation went awry.

BARBARA McCOMBS: There are many dimensions to funding. The foundation Jim mentioned is imposing some structure, others impose a lot, and others are more open. I believe the Edna McConnell Clark Foundation is funding five major urban school districts at a half a million dollars a year for five years, and giving them a lot more freedom. It might be interesting to analyze the relative effectiveness of these various models along the different dimensions that foundations adhere to.

MODERATOR COVINGTON: *What do you think, Marty?*

MARTIN MAEHR: I'm hesitant to speak having joined you as a latecomer. But as I was listening, I heard many things. And, as a matter of fact, I am delighted to be here because I have to give a talk in a couple of weeks to a group of people on redesigning schools for the 21st century. One thing has escaped me in this discussion. It's just coming into it now and it's one I think is rather important, particularly for some foundations to take up. I hear an implicit assumption that the place called school is always there, and I think it's time to question that assumption. We're saying "How do you toy with teaching in classrooms?" when someone should be asking whether or not we ought to have classrooms. Or, instead of talking only about businesses adopting a school or a classroom, perhaps, someone ought to ask the question: "Should not kindergarten-through-third-grade people have their education in a place close to mother's work place?

One of my proposals to a foundation would be to examine what's going on in various housing units. For example, directors of housing in major cities like Omaha have a program where they're trying to bring schools together with the housing environments, because it's the housing arrangements that basically make it possible for parents to go to school. Most parents don't want to go to school. They hated school. They were failures in school. And finding ways to get them to interact with school and school people may be impossible.

Rather than looking at schools in terms of how they can make a kid a better student, we have to address the more basic question of, "How do you socialize these kids?" I'm convinced that we have to do this at the high school level. So, I'd like to throw that back to you.

JIM CONNELL: Part of the big movement now is this idea that if you give parents choices about what schools they send their kids to, everything will be okay because, in terms of schools and programs, the cream will rise to the top. The fact is that until we can reconceptualize or maybe even *deconceptualize* what schools are, there won't be any choice to begin with. Until we start breaking down some of these barriers we've talked about today and start talking about education or socialization as a process that may or may not go on within a building called school or within a classroom, there won't be any choices for parents to make. Maybe eventually there will be a school building, and a home, and an information center at the library, and that sort of thing. That's terrific. Then you've got some choices.

MODERATOR COVINGTON: *Let's think small in the last two or three minutes that we have. What if you had $1.95 rather than millions, what sort of brief, worthwhile thing might you choose to do?*

JIM CONNELL: Well, if you've got a little bit of money, you might just turn some people loose to think about these problems for a couple of years.

SCOTT PARIS: I agree, but instead of all of us having a glint in our eyes, we should think of the teachers. In the Pittsburgh schools, there is a model of professional development in which teachers rotate for six to eight weeks. I think it's a remarkable model and if you have a little bit of money, I would propose giving some autonomy back to the schools--have the teachers and the principal work together, asking themselves what they could do in what time frame with this amount of resources that would make some difference in their own school. It might be a textbook adoption; it might be thinking skills across the curriculum; it might be better use of a test; it might be making workplace connections; it might be community-home involvement.

CLAIRE WEINSTEIN: I'd like to argue for a compromise which is a little bit of both. I would rather see an interdisciplinary group of professors, teachers, parents, people in the community, taking an interdisciplinary long-term approach starting with a dialog among them and then perhaps trying something out in a local setting. This is the very way we hope these things are going to be done in the future.

JIM CONNELL: We agree that there are some really tough things to accomplish here--things to be undone, to be done--and that some good minds from the constituencies who may now be a part of the problem are going to have to be part of the solution. We could begin such a demonstration project with a position paper, or a set of strategies, and then find a demonstration site, and offer the plan to somebody saying, "We'd like to come in and work with you on this; we've given it some thought."

MODERATOR COVINGTON: *Let me be provocative in a slightly different direction. As cognitive motivational psychologists who do bench work in laboratories, so to speak, or who sometimes have children as subjects, what piece of evidence or information about human processing would be useful to you in relation to the ideas we've discussed?*

JIM CONNELL: I'd like to know the connection between the kind of things that Scott and others do--working on curriculum, problem solving, thinking skills--and the kind of variables that you and I look at; that is, what are the mechanisms whereby kids' attitudes are changed, both toward the dark side and bright side?

In other words, I put out this proposition that kids go from thinking that *effort* is what counts to thinking *ability* is what counts. How do you reclaim the kid who believes it's ability that counts and he doesn't have it, to a point where he believes that if he just puts out some effort and interacts with a teacher he could make it after all? It is those mechanisms that operate at an individual level that I'd be interested to look at.

DAVID BERGIN: I'd like to see some stronger theoretical frameworks that include all the things we've talked about--cognition, affect, and so on--as well as societal and family dimensions, and make some predictions. For instance, if we make day care like "this," what will happen to the kids? If mothers work and fathers do "this" and they're both like "this," what will happen to the child's achievement? We're beginning to make those predictions now, even though it's haphazard at the moment. We're sort of grasping from sociology, grasping from attribution theory, grasping from wherever, and trying to hammer a theory together.

MODERATOR COVINGTON: *I think your comment is a wonderful note to end on before we move to lunch. I think there's a real excitement about this project, and about looking at these issues in the integrative way that David suggested. Thank you for participating in this forum, the first of four scheduled by The Whitman Institute on "future thinking." We will stay in touch with you, and we will be gaining thoughts and feedback from subsequent forums so that this doesn't end here.*

ThinkAhead

A research project conducted by
THE WHITMAN INSTITUTE
San Francisco, California

SUMMARY OF PROJECT

ThinkAhead is a project designed to serve as a catalyst for developing educational models that will prepare people to think more critically and creatively in the world of the future. Its first year is devoted to convening a series of forums that will bring together participants whose vantage points we regard as vital to thinking about thinking in American society, whether within or outside of the school system. Participants will include teachers, principals, educational researchers, futurists, business people, students, parents, and textbook publishers.

MAJOR ASSUMPTIONS

To understand ThinkAhead's ultimate educational mission, we must first let go of a persistent myth: that changes worth making, in whatever arena of society, can be made without affecting every aspect of the social, political, and economic status quo. Given the widespread consensus that we are now inescapably connected to a global community where the actions of one nation are felt, and very quickly, by other nations, it is important that anyone looking toward future change recognize the fallacy in such thinking and plan accordingly.

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In the face of the now well-articulated view of a future world that is increasingly complex and interrelated, we deemed it important to our project to take a hard look at those aspects of our value system that have stood America in good stead in the past but may now have little or no currency. For example, we have long valued

- individual more than collaborative effort
- specialized knowledge and focused career choices over generalism or eclecticism
- science and technology over humanities
- English as the only necessary language
- competition over cooperation as a motivator
- the idea of "acceptable" levels of illiteracy and school drop-outs
- our own social, political, economic system as the only if not the best in the world.

Yet today's reality and tomorrow's certainty is that the social, economic, political, and ecological issues facing us are global in nature and demand thoughtful, collaborative, multidimensional responses. Accordingly, based on what we know about the look of the future, and what we can anticipate, these are some of the key operating assumptions for the ThinkAhead project:

- that the new interconnectedness and interdependence of organizations, institutions, and nations gives rise to larger-scale problems that do not have single causes, single effects, or single "right" solutions;

- that critical and creative thinking skills are particularly important to an information-based society;

- that even with the widespread attention being given to educational reform, the danger looms that our schools are driving into the future with eyes firmly fixed on the rearview mirror, i.e., honoring and using instructional models from the past that no longer apply to the learning needs of a post-industrial society;

- that education and learning can no longer be confined to physical classrooms, to set age groups, and to a prescribed set of professionals but, rather, must be approached as a lifelong cooperative undertaking among parents, business and community leaders, and various other professionals and experts;

- that the workplace of tomorrow will demand, even for entry-level positions, greater general knowledge and a higher degree of technological literacy as well as flexibility, willingness to work in teams, and problem-solving skills;

- that advances in computer and communications technology seen as creating an information-*saturated* environment can be mastered by teaching and training individuals to (1) use this technology appropriately and (2) to select, analyze, and evaluate information strategically;

- that gender issues in the teaching profession need to be analyzed and re-evaluated as we work to develop new educational models; e.g., the ramifications of women dominating the elementary school years (as teachers not administrators) and the increasing visibility of male teachers thereafter;

- that even though there may be so-called born achievers who will always make it through any educational system, too many potential contributors to society are being sacrificed, neglected, or ignored by current educational models.

In making these assumptions, The Whitman Institute is speaking not from the perspective of educators but from the viewpoint of concerned generalists who recognize the need for new and broader educational approaches dedicated to lifelong learning. As a small institute

with lofty ambitions, we hope that the forum structure of the ThinkAhead project will not only encourage multiperspective, open-ended, and collaborative thinking among our panelists but will also serve to spark serious, coordinated, and sustained activity among others.

ABOUT THE FORUMS

ThinkAhead will convene four forums for the year, organized around different themes. That we have settled on four themes does not mean there are no other issues requiring examination; at the end of this exploratory year, we hope to see an array of topics from which we can select those best suited for follow-up activities.

In each of the four-hour sessions, panelists will discuss what they (and we) regard as key ThinkAhead questions in their areas of expertise and interest. Martin V. Covington, Consultant and Professor of Psychology, will facilitate each forum. The forum titles and the participant groups we have targeted are:

LEARNING IN THE FUTURE: Leading educational researchers from various universities across the country will discuss their ongoing work (in such areas as study skills, reading, and problem-solving) in specific relation to the future of education.

DESIGNING THE FUTURE: Futurists, representing different professions and academic disciplines including specialists in computer uses in education, will set forth their views of what the next century is likely to demand and how those demands might affect education.

WORKING IN THE FUTURE: Business people, concerned that a growing number of applicants, at all levels, lack appropriate preparation and skills to satisfy job requirements, are invited to share their experience and recommendations with us.

RESTRUCTURING FUTURE EDUCATION: Forward-thinking teachers, administrators, parents and others eager to begin or already involved in rethinking and reshaping educational policy will examine the broad spectrum of changes that must occur in our systems and practices of delivering education.

Our first forum is scheduled for March 1989.

PUBLICATIONS:

After each forum, the Institute plans to produce and disseminate edited transcripts and other offshoot papers to those who participated in the previous forum as well as those scheduled to participate in the next forum. In addition, we will distribute these papers and reports to various individuals, agencies, libraries, and organizations we want to inform and/or excite to action.

At the completion of the four forums in December 1989, we have tentative plans to hold a final review session drawing on selected participants and observers from the four forums. This final session will permit us to integrate the work of the forums, to evaluate our findings and our process, and to discuss future directions.

For further information about this project, please contact John Esterle, Director of Research, at The Whitman Institute (415) 982-0386.

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